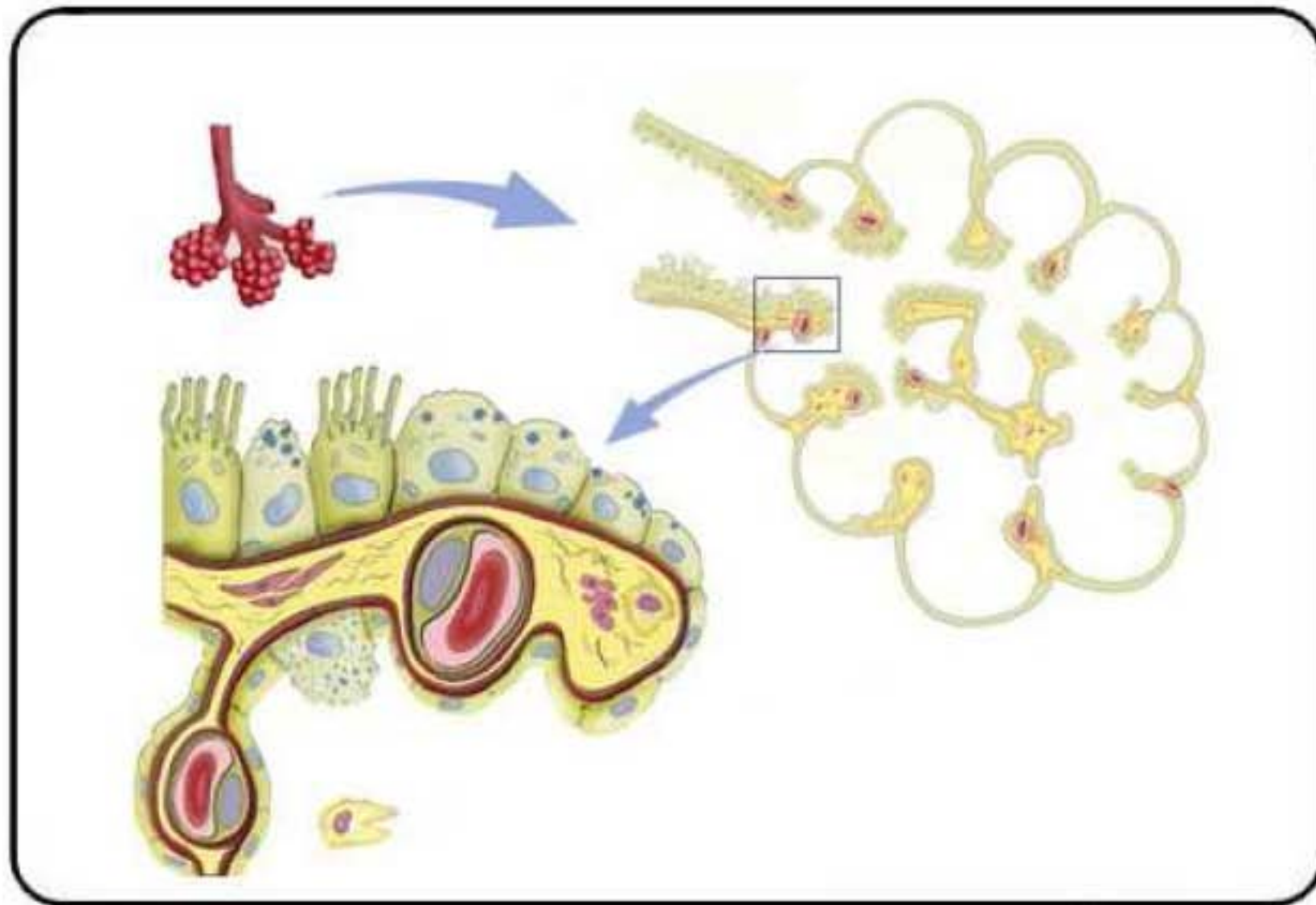


Histology Mind Maps



**Respiratory
System**



2010

0.50 L.E.

WWW.MEDADTEAM.ORG

NMT 14

Respiratory system

respiratory portion

conducting portion

function

gas exchange

functions

conducting

conditioning

CLEANING BY CILIA & GOBLET CELLS

warming by vascularity

moisten by mucous

include

respiratory epith

fetal lung

includes

LUNG

respiratory bronchioles

alveolar duct

alveolar sac

alveoli

alveolar phagocytes

dust cells

heart failure cells

blood - air barrier

interalveolar septa

ciliated columnar cells

mucous goblet cells

brush cells

basal

neuroendocrine

olfactory mucosa

epith

sensory cells

sustentacular

basal

c.t corium

vestibule

nasal fossa

nasal cavity

formed by olfactory mucosa (epith + c.t corium)

olfactory area

paranasal sinus

nasopharynx

larynx

vocal cord

trachea

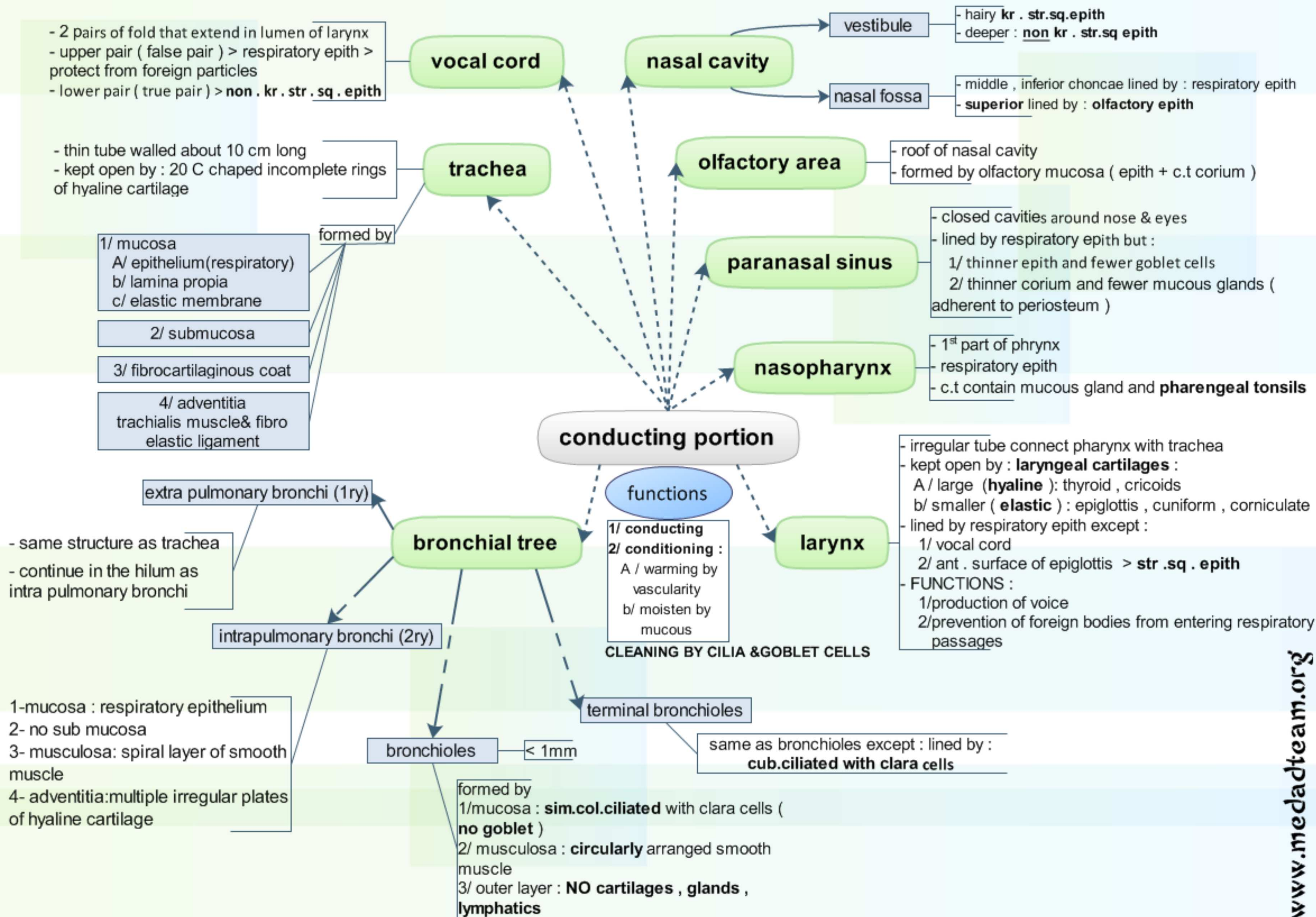
bronchial tree

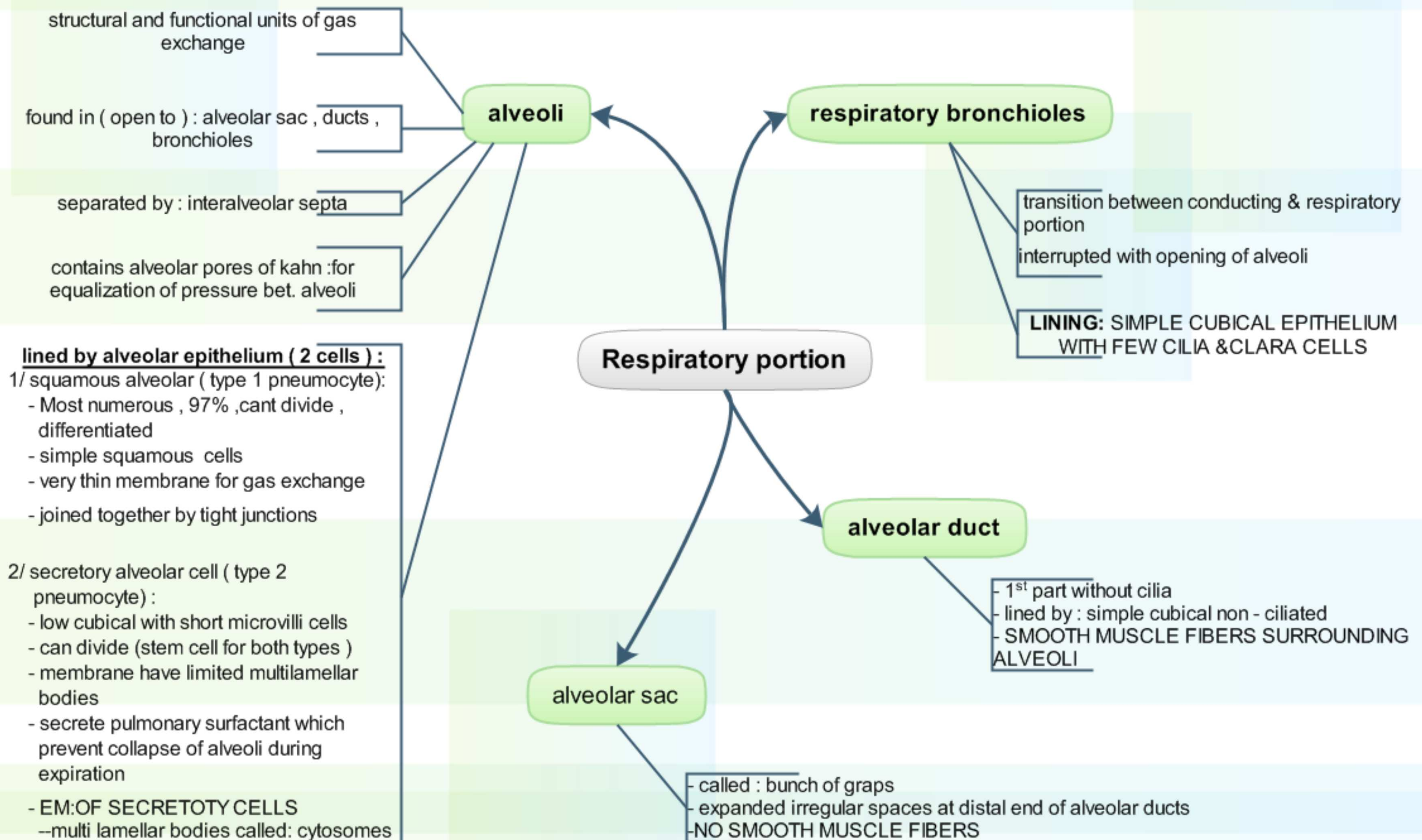
extra pulmonary bronchi (1ry)

intrapulmonary bronchi (2ry)

bronchioles

terminal bronchioles





respiratory epithelium pseudo.str.col.ciliated with goblet cells (5 cells)

- ciliated columnar cells**
 - most abundant
 - cytoplasm contains basal bodies & numerous mitochondria
- mucous goblet cells**
 - secrete mucous > cover the epithelium & traps bacteria from inspired air
- brush cells**
 - columnar with apical microvilli, basal afferent nerve endings
 - appear as sensory receptor
- basal cells**
 - act as stem cells
- neuroendocrine**
 - scattered, numerous granules with dense core

olfactory mucosa formed by

- olfactory epithelium** pseudo.str.ciliated with no goblet cells (3 cells)
 - olfactory sensory cells**
 - bipolar nerve cells
 - 6-8 non-motile long cilia
 - sustentacular**
 - all columnar with wide cylindrical apices & narrow bases
 - provided with microvilli immersed in a fluid layer
 - yellow pigmented cytoplasm give the mucosa its color
 - basal cells**
 - small pyramidal cells present in the deepest zone of the epithelium
 - act as stem cells for both types
- C.T lamina propria (corium)**
 - contain bowmans glands : secrete a serous fluid that act as solvent for odorous gases

interalveolar septa

- delicate partition separating alveoli with abundant blood capillaries
- supported by elastic & reticular fibers
- contain extravasated leucocytes (monocyte) & C.T cells

blood air barrier

VERY THIN : 0.1 - 1.5 MICRON
structures crossed by O₂ and CO₂ to be exchanged

- 1/ pulmonary surfactant
- 2/ cytoplasm of type 1 pneumocyte
- 3/ fused basal lamina between type 1 & capillary endothelium
- 4/ endothelial cells of blood

alveolar phagocytes

- arise from monocyte escaping from blood capillaries to enter the C.T
- MACROPHAGE WITH ENGULFED PARTICLES MAY BE SEEN BULGING FROM INTERALVEOLAR WALL OR FREELY IN THE ALVEOLAR AIR SPACE
- 2 TYPES : 1/ DUST CELLS 2/ HEART FAILURE CELLS
 - brick red colour due to phagocytosed erythrocytes

FETAL LUNG

- NO FUNCTION IN FETUS >> COLLAPSED IN THE INTERUTERINE LIFE
- LOBES & LOBULES ARE CLEAR DUE TO THICK C.T SEPTA
- ALVEOLI ARE COLLAPSED AND LINED BY SIMPLE CUBICAL EPITHELIUM
- CARTILAGE PLATES ARE PRESENT AROUND THE BRONCHI >>> DIFFERENTIATED FROM AGLAND
- PULMONARY BLOOD VESSELS ARE FULL OF BLOOD

CLARA CELLS

- DOME CHAPED, FREE CELLS CILIA
- SECRETE SURFACTANT LIKE MATERIAL
- PROTECT AGAINST : 1/ EMPHYSEMA 2/ HARMFUL SUBSTANCE INHALED
- ACT AS STEM CELL
- EM: APICAL sER & BASAL rER --SECRETORY VESICLES--TIGHT JUNCTIONS